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User Interface as a Literacy – Impact on Design

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**Problem Solutions, in support of the
Advanced Distributed Learning Initiative**



Introduction

- **Smart phones, Tablets, Laptops, and Desktops perform largely the same functions.**
- **What is the major difference? User Interface!**
- **The providers of these devices and their services also offer distinctions among their products.**



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PC or Mac™?

- What are the barriers to switching brands?
 - Functionality
 - Familiarity
 - Experience/Look-and-feel
 - Social/Community



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Points of Emphasis

- ▶ **One cannot completely separate the user interface from the experience.**
- ▶ **It is difficult, if not impossible, to learn how to use technology independently of culture.**
- ▶ **Research on literacy can be applied to user interfaces.**
- ▶ **UI expertise can be gained similar to competencies.**
- ▶ **Convergence and flexibility can co-exist in design to support new and experienced users.**
- ▶ **Plan on mitigating expectation vs. reality.**

What is a User Interface?

- **“A user interface is a linkage between a human and a device or system that allows the human to interact with that device or system.” ~ Linux Information Project (2007)**
- **Or more commonly, a human provides input and the machine does its job**
- **Turning a steering wheel, pressing an on/off button, swiping a touch-screen, and voice activated menus are all examples of user interfaces.**

UI Terms

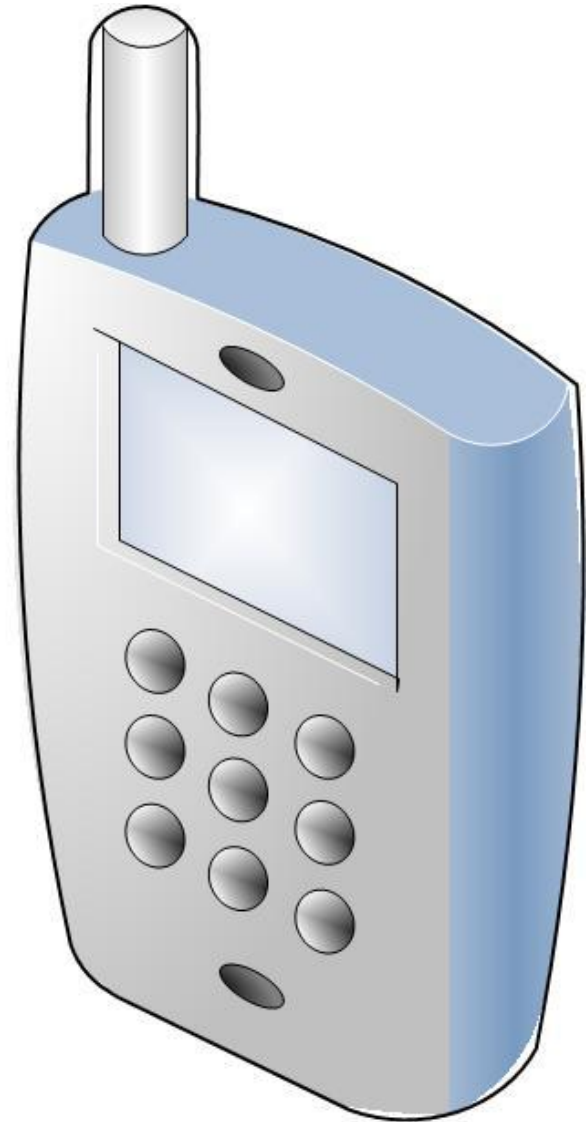
Action – *Press*

Manipulatable (Part) – *Button*

Operand – *Press a Button*

Operation – *A Series of Button Presses*

Function – *Phone Call*

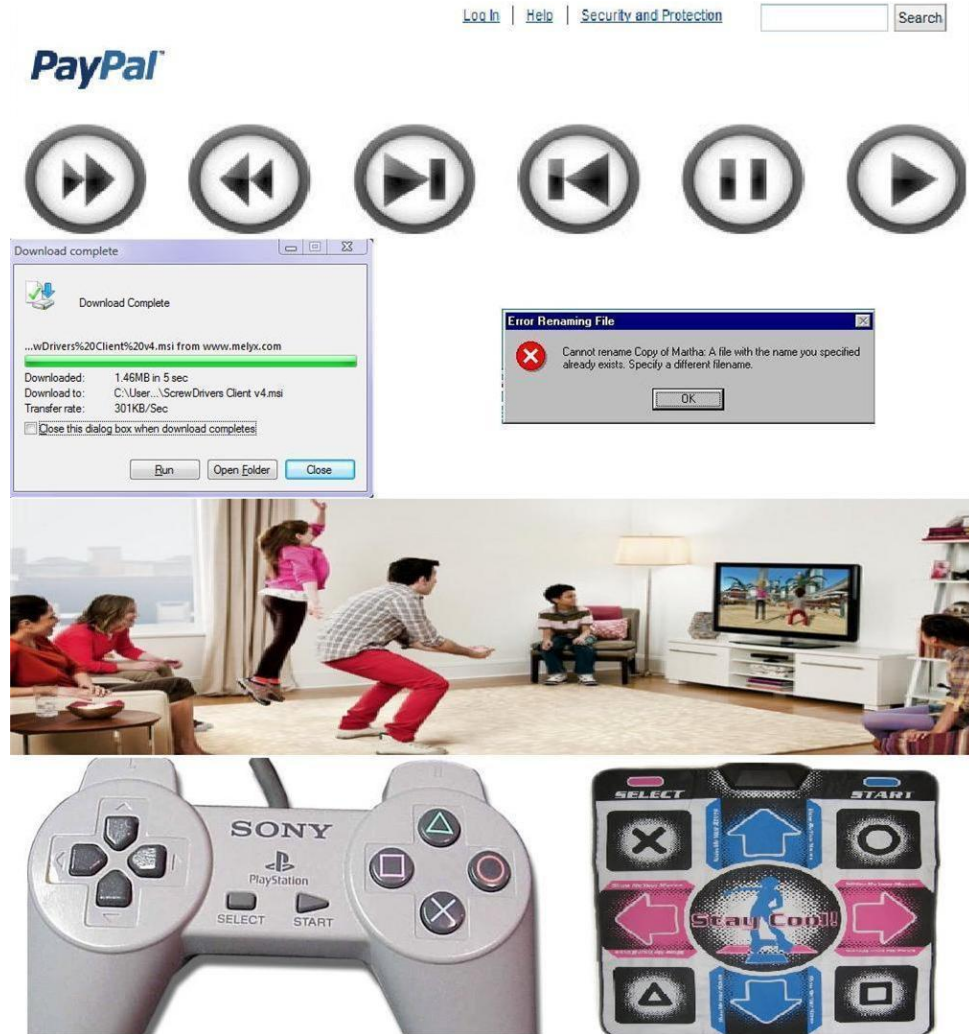


What is Literacy?

- **Definitions of literacy vary across the board, but words found in many of them include:**
 - **Learning**
 - **Read**
 - **Write**
 - **Understand**
 - **Text**
 - **Language**
 - **Communicate**
 - **Reproduce**

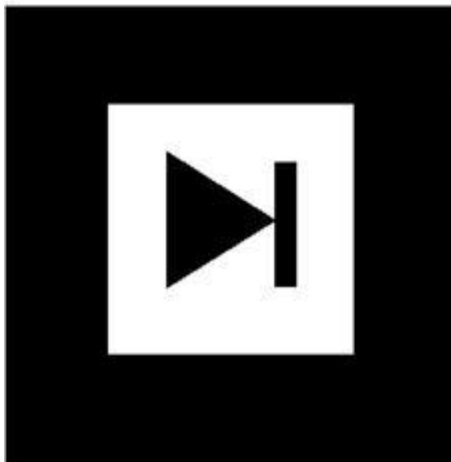
Text

- Text is not simply “words on a page.”
- Anstey and Bull (2006)
- Types of Text:
 - Linguistic
 - Visual
 - Auditory
 - Gestural
 - Spatial



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Genres



“Big D” Discourses

- Gee defines Discourses as learning new social languages and genres at the level of being able to reproduce them.
- Incorporates ways of reading, writing, speaking, valuing, etc.
- Ordering food at McDonalds™ or Subway™ involves use of different Discourses.



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Cultural Model

- **Gee describes cultural models as having the quality of capturing what a particular group finds “normal” or “typical”.**
- **Aren’t noticed as much until an “unfitting” Discourse is used.**
- **Like ordering a #1 at Subway™ or asking to build your own burger at McDonalds™.**



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Literacy in UI

- In designing UIs, it is important to understand cultural models.
- Why does the example on the right not fit our cultural model?
 - Password not phonemic
 - Special characters
 - Privacy



Application

- **To broadly apply UI as a Literacy, a technical specification could be a useful tool.**
- **The operations a user can perform can be directly mapped to functions the device performs.**
- **Provides a common way to talk about UI mapping and what each individual mapping means.**
- **As the specification is machine-readable, detailed analysis could be conducted to optimize time, number of steps, or to monitor users' reactions to see what “doesn't fit” in their cultural model.**

Discourses as Competencies

- **Leverage Vygotsky's "Zone of Proximal Development" – the idea that there is a logical "next thing" to be learned.**
- **The language tools we use, whether spoken word or text embedded within technology, become a part of us.**
- **Effective use of competencies could enable a device to:**
 - **Offer relevant training for the current device.**
 - **Aid the purchase of a new device with a customized guide or a "Top 10" things you should know.**
 - **Suggest configurations to expert users.**

Converging Cultural Model

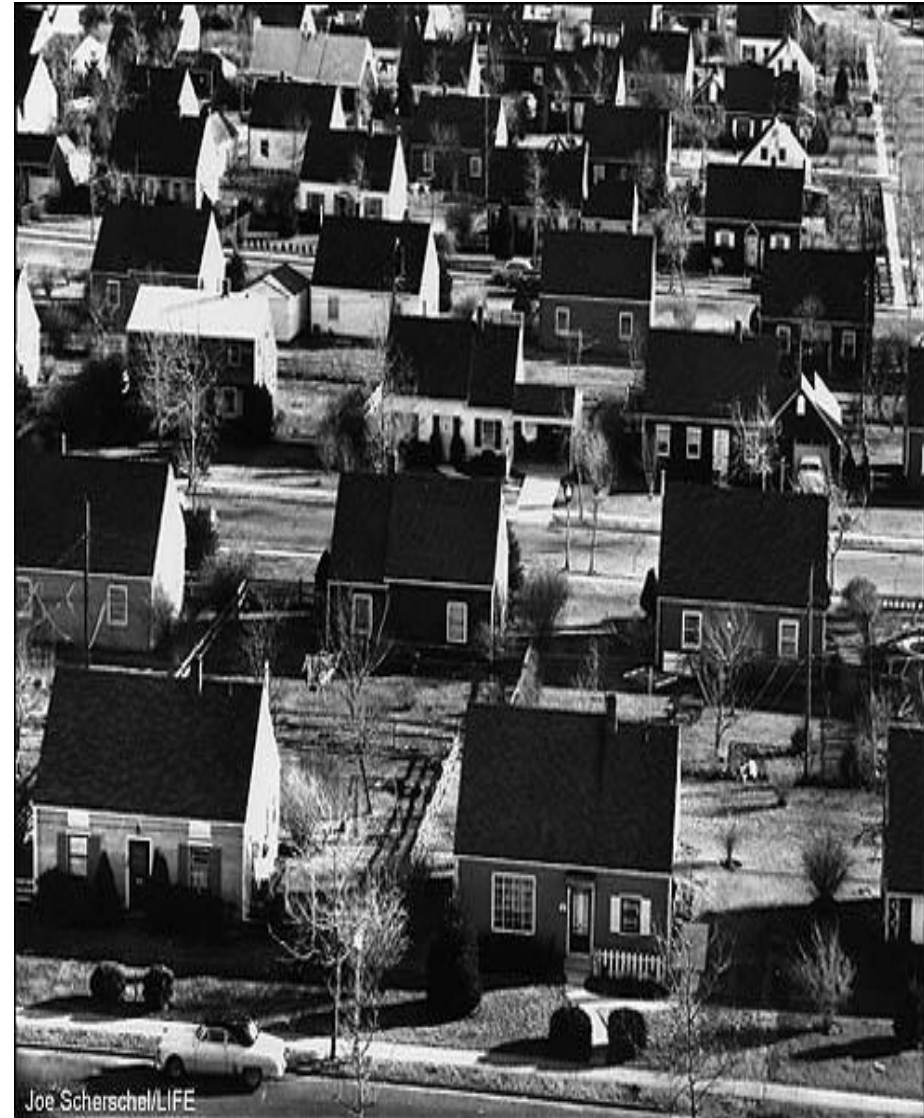
- **Leveraging competencies and optimal strategies tends to streamline processes.**
- **Can be useful for bringing cost down and increasing comprehension among similar technologies.**
- **David Nye explores the possibility that this creates “soulless” people using Levittown, New York.**



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Customization

- A few years after construction in Levittown, houses didn't seem so “soulless”.
- David Nye attributed this to customization.
- Customization of UIs, particularly in technology, are getting cheaper and cheaper.



Flexible UI

- **Guitar Hero™**, a video game series on all consoles.
- Part of the UI is a series of 5 colored buttons corresponding to notes.
- Guitar is intended to be played right-handed, but the game UI allows customization for left-handed players.



Quick Recap

- ▶ **One cannot completely separate the user interface from the experience.**
- ▶ **It is difficult, if not impossible, to learn how to use technology independently of culture.**
- ▶ **Research on literacy can be applied to user interfaces.**
- ▶ **UI expertise can be gained similar to competencies.**
- ▶ **Convergence and flexibility can co-exist in design to support new and experienced users.**
- ▶ **Plan on mitigating expectation vs. reality.**

Expectation Vs. Reality

- In 2006, Nintendo™ released the Wii™ video game platform.
- The Wii™ introduced the concept of motion as a UI into an entire platform of games.
- While innovative, many televisions did not survive...



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Remember

- The greatest technology is useless without an interface that a human can understand.





Thank You!

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